Please add the following new claims:

--30. A method for producing a carbon- and oxygen-containing permanent magnet alloy, said method comprising producing an alloy consisting essentially of, in weight percent, 27 to 35 of a rare earth element, including Nd in the amount of at least 50 percent of the total rare element content with at least one of Pr or La substituted for up to 50 percent of the Nd, 0.8 to 1.3 B, up to 30 Co, 40 to 75 Fe, up to one of at least one of Cu, Ga, and Ag; producing pre-alloyed particles and/or blends thereof from said alloy, contacting said particles with a carbon-containing material to produce a carbon content therein of 0.03 to 0.3 and contacting said particles with an oxygen-containing material to produce an oxygen content therein of 0.2 to 0.8.

31. The method of claim 30 further comprising Dy and Tb being substituted for Pr and La.--

REMARKS

Applicants affirm the provisional election of Group II method claims 8-22. This election is made without traverse.

With respect to the objection to the specification, in Table I on page 8 of the specification, a division sign has been inserted in accordance with the Examiner's request. The inventors advised that the formula recited on page 7 requires the square brackets referred to by the Examiner, because the subject matter within the brackets is the part of the formula below the line signifying division, (/).

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N.W.
WASHINGTON, DC 20005
1-202-408-4000



32

With respect to the rejection of claims 19 and 20 under 35 U.S.C § 112, fourth paragraph, these claims have been cancelled and this rejection is not believed to apply to the claims as presently constituted, including newly added claims 30 and 31.

The rejection of claims 15 and 16 under 35 U.S.C § 112, second paragraph, has been avoided by the amendment presented herein with respect to the dependency of claim 15.

Claims 8, 14, and 18-22 are rejected under 35 U.S.C § 103 as being unpatentable over Cunningham et al., U.S. Patent No. 3,885,995 or Japanese Patent Publication 53-14133. This rejection is respectively traversed.

In accordance with the methods of the invention, a rare earth containing, permanent magnet alloy of the composition recited in the claims is contacted with carbon- and oxygen-containing material to produce in particles of the alloy carbon contents within the range of 0.03 to 0.3 percent and oxygen contents within the range of 0.2 to 0.8 percent. Consequently, the invention, as expressly recited in all of the claims is limited to a method embodying the recited rare earth containing permanent magnet alloy particles. By providing the combined carbon and oxygen contents within these particles, new and unobvious results are achieved from the standpoint of an improved combination of properties, as demonstrated by the data set forth in the specification. Specifically in this regard, a combination of improved thermal stability and corrosion resistance is achieved. This desirable combination of properties is achieved while improving the magnetic properties, namely

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N. W.
WASHINGTON, DC 20005
1-202-408-4000

increasing the coercivity without decreasing the remanence and Curie temperature, whereby the useful temperature range for the magnets made from the alloy particles is desirably expanded.

Each of the references cited by the Examiner has the same deficiencies. Specifically, they both relate to steel and in no manner suggest that applicants' desired combination of permanent magnet properties, as discussed above, may be achieved by contacting particles of the permanent magnet alloy recited in the claims with carbon- and oxygen-containing material to produce therein carbon and oxygen contents within the claimed ranges. One skilled in the art looking for a method to improve this combination of magnetic particles in a rare earth containing permanent magnet alloy would not consider prior art relating to iron-based alloys, namely steel, not having permanent magnet properties. In addition, the references do not relate to treating material in particle form. Likewise, there is no disclosure for providing an oxygen content within the claimed range of 0.2 to 0.8 percent with the alloys to which the references relate.

Claims 8, 14, and 17-22 are rejected under 35 U.S.C § 103 as being unpatentable over Dawes et al., U.S. Patent No. 4,563,223. This rejection is respectfully traversed.

This reference suffers from the same deficiencies as Cunningham et al., and the Japanese Patent Publication discussed above. Namely, Cunningham et al., in no way relates to treating a rare earth containing permanent magnet alloy in particle form. Likewise, the material is not in particle form, but instead in a

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N. W.
WASHINGTON, DC 20005
1-202-408-4000

form suitable for surface treatment by the disclosed nitrocarburizing practice to produce thereon a layer resistant to oxidation.

Claims 9-13 are rejected under 35 U.S.C. § 103 as being unpatentable over Cunningham et al., Dawes et al., or the Japanese Patent Publication in view of Miyakawa or Kim. This rejection is respectfully traversed. There is no disclosure or suggestion in Miyakawa or Kim that cures the deficiencies of Cunningham et al., Dawes et al., or the Japanese Patent Publication as discussed above.

In view of the above, favorable reconsideration of claims 8-18 and 21-29, and newly added claims 30 and 31, with a view to allowance is earnestly solicited.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER

By: Clair X. Mullen, Jr.
Clair X. Mullen, Jr.
Reg. No. 20,348

Dated: October 24, 1994

LAW OFFICES
FINNEGAN, HENDERSON
FARABOW, GARRETT
& DUNNER
1300 I STREET, N.W.
WASHINGTON, DC 20005
1-202-408-4000